

**MARCH/FY06**

**FORT BRAGG**

**North Carolina**

**Army Defense Environmental  
Restoration Program  
Installation Action Plan**

Final 31 May 2006

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## Statement of Purpose

The purpose of the Installation Action Plan (IAP) is to outline the total multi-year Cleanup Program for an installation. The plan identifies environmental cleanup requirements at each site or area of concern, and proposes a comprehensive, installation-wide approach, with associated costs and schedules, to conduct investigations and necessary remedial actions.

In an effort to coordinate planning information between the program manager, US Army Environmental Center (USAEC), Fort Bragg, Installation Management Agency (IMA), executing agencies and regulatory agencies, an IAP was completed. The IAP is used to track requirements, schedules and tentative budgets for all Army installation cleanup programs.

All site-specific funding and schedule information has been prepared according to projected overall Army funding levels and is, therefore, subject to change.

The ACSIM does not require legal review of the Installation Action Plan.

The following agencies contributed to the formulation and completion of this Installation Action Plan during a planning workshop held on 14 – 15 Mar 2006:

**Company/Installation/Branch**

Engineering and Environment, Inc for USAEC

Fort Bragg, Environmental Branch

IMA – Southeast Regional Office

NCDENR, Superfund

USACE, Savannah

USAEC

## Acronyms & Abbreviations

|        |  |
|--------|--|
| AEDB-R | Army Environmental Database – Restoration (formerly called DSERTS) |
| AMMO   | Ammunition   |
| AOC    | Area of Concern  |
| ASP    | Ammunition Supply Point  |
| AST    | Aboveground Storage Tank   |
| BMP    | Base Master Plan   |
| BRAC   | Base Realignment and Closure                                       |
| CC     | Compliance-Related Cleanup   |
| CMI    | Corrective Measure Implementation                                  |
| CMI(C) | Corrective Measure Implementation (Construction)                   |
| CMI(O) | Corrective Measure Implementation (Operation)                      |
| CMS    | Corrective Measure Study   |
| CTC    | Cost to complete   |
| DA     | Department of the Army   |
| DD     | Decision Document  |
| DEH    | Directorate of Engineering and Housing                             |
| ENRD   | Environmental and Natural Resources Division                       |
| EOD    | Explosive Ordnance Division  |
| EPA    | United States Environmental Protection Agency                      |
| ER,A   | Environmental Restoration, Army (formerly called DERA)             |
| FS     | Feasibility Study  |
| FTBR   | AEDB-R Database Code for Fort Bragg                                |
| FY     | Fiscal Year  |
| GIS    | Geographic Information System                                      |
| HRC    | Hydrogen Release Compound  |
| IAP    | Installation Action Plan   |
| IMA    | Installation Management Agency                                     |
| IRA    | Interim Remedial Action  |
| IRP    | Installation Restoration Program                                   |
| LTM    | Long Term Maintenance  |
| LUC    | Land Use Control   |
| MMRP   | Military Munitions Response Program                                |
| NC     | North Carolina   |
| NCDENR | North Carolina Department of Environment and Natural Resources     |
| NFA    | No Further Action  |
| NOV    | Notice of Violation  |
| NPDES  | National Pollution Discharge Elimination System                    |
| NPL    | National Priorities List   |
| MMRP   | Military Munitions Response Program                                |
| O&M    | Operations and Maintenance   |
| OMA    | Operations and Maintenance Account                                 |
| OU     | Operable Unit  |
| OWS    | Oil/Water Separator  |
| PA     | Preliminary Assessment   |
| PAFB   | Pope Air Force Base  |
| OU     | Operable Unit  |

## Acronyms & Abbreviations

|       |   |
|-------|---|
| OWS   | Oil/Water Separator                               |
| PA    | Preliminary Assessment                            |
| PAFB  | Pope Air Force Base                               |
| PCB   | Polychlorinated Biphenyls                         |
| PCE   | Perchloroethylene                                 |
| POL   | Petroleum, Oil and Lubricants                     |
| POM   | Program Objective Memorandum                      |
| PY    | Prior Year  |
| RA    | Remedial Action                                   |
| RA(C) | Remedial Action - Construction                    |
| RAB   | Restoration Advisory Board                        |
| RACER | Remedial Action Cost Engineering and Requirements |
| RC    | Response Complete                                 |
| RCRA  | Resource Conservation and Recovery Act            |
| RD    | Remedial Design                                   |
| REM   | Removal   |
| RFA   | RCRA Facility Assessment                          |
| RFI   | RCRA Facility Investigation                       |
| RI    | Remedial Investigation                            |
| RIP   | Remedy in place                                   |
| ROD   | Record of Decision                                |
| RRSE  | Relative Risk Site Evaluation                     |
| S&A   | Supervision and Administration                    |
| S&R   | Supervision and Review                            |
| SCM   | Site Conceptual Model                             |
| SI    | Site Inspection                                   |
| SVOC  | Semi-Volatile Organic Compounds                   |
| SWMU  | Solid Waste Management Unit                       |
| TAPP  | Technical Assistance for Public Participation     |
| TCE   | Trichloroethylene                                 |
| TPH   | Total Petroleum Hydrocarbons                      |
| TRC   | Technical Review Committee                        |
| USACE | United States Army Corps of Engineers             |
| USAEC | United States Army Environmental Center           |
| USGS  | United States Geological Survey                   |
| UST   | Underground Storage Tank                          |
| VOC   | Volatile Organic Compounds                        |
| WTP   | Water Treatment Plant                             |
| WWTP  | Wastewater Treatment Plant                        |

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## Acronyms & Abbreviations

### Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and Resource Conservation and Recovery Act (RCRA) Acronym Conversions

#### CERCLA

Preliminary Assessment (PA)

=

#### RCRA

RCRA Facility Assessment (RFA)

Site Inspection (SI)

=

Confirmation Sampling (CS)

Remedial Investigation/  
Measures Feasibility Study (RI/FS)

=

RCRA Facility Investigation/Corrective  
Study (RFI/CMS)

Remedial Design (RD)

=

Design (DES)

Remedial Action (Construction)  
(Construction) (RA(C))

=

Corrective Measures Implementation  
(CMI(C))

Remedial Action (Operation)  
(Operation) (RA(O))

=

Corrective Measures Implementation  
(CMI(O))

Long-Term Management (LTM)

=

Long-Term Management (LTM)

Interim Remedial Action (IRA)

=

Interim Measure (IM)

### CERCLA and RCRA Underground Storage Tank (UST) Acronym Conversions

#### CERCLA

Preliminary Assessment (PA)

=

#### RCRA UST

Initial Site Characterization (ISC)

Remedial Investigation (RI)

=

Investigation (INV)

Feasibility Study (FS)

=

Corrective Action Plan (CAP)

Remedial Design (RD)

=

Design (DES)

Remedial Action (Construction)  
(RA(C))

=

Implementation (Construction) (IMP(C))

Remedial Action (Operation)  
(RA(O))

=

Implementation (Operations) (IMP(O))

Long-Term Management (LTM)

=

Long-Term Management (LTM)

Interim Remedial Action (IRA)

=

Interim Remedial Action (IRA)

**Installation Locale:** Fort Bragg is located on approximately 200,000 acres in south-central North Carolina approximately 50 miles south of Raleigh. The facility is part of Cumberland, Hoke, Harnett, and Moore Counties, and abuts the cities of Fayetteville and Spring Lake.

**Installation Mission:** To provide guidance, guidelines, and training on environmental issues, programs, and regulations; and how they affect Fort Bragg's mission, military training, and the quality of life of our soldiers, dependants, and civilians.

**Lead Organization:**

Installation Management Agency, Southeast Region

**Lead Executing Agencies:**

US Army Corps of Engineers (USACE), Savannah District

**Regulatory Participation**

**Federal:** USEPA, Region IV

**State:** North Carolina Department of Environment and Natural Resources (NC DENR)

**National Priorities List (NPL) Status:** Not on NPL

**Installation Restoration Advisory Board (RAB)/Technical Review Committee (TRC)/Technical Assistance for Public Participation (TAPP) Status:** No

RAB/TRC/TAPP currently at Fort Bragg. The public was last surveyed in Feb 2006 for interest in participating in a RAB, the public expressed no interest in forming a RAB.

**Installation Program Summaries**

**IRP**

Primary Contaminants of Concern: Petroleum/Oil/Lubricants (POL), Polychlorinated biphenyls (PCBs), Metals, Pesticides, Explosives, Volatile Organic Compounds (VOCs), Semi-Volatile Organic Compounds (SVOCs)

Affected Media of Concern: Soil, Groundwater, Surface Water, Sediment

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 2007/2017

Funding to date (up to FY05): \$21,083,230

Current year funding (FY06): \$2,103,000

Cost-to-Complete (FY07+): \$7,118,000

**MMRP**

There are no MMRP sites identified at Fort Bragg

**BRAC**

1 BRAC site managed by Southeast Region IMA. Response Complete as of FY2000.

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## Cleanup Program Summary

### *Installation Historic Activity*

Approximately 11,000 acres (17 square miles) of Fort Bragg comprise the cantonment area, which is located in the eastern part of the installation, and includes approximately 5,168 buildings. Almost all military maintenance and commercial facilities, supply facilities, operation and training facilities, various community facilities, and family and troop housing areas are located in this cantonment area. Fort Bragg currently supports a combined military and civilian population of about 65,000. The bulk of the installation's acreage is dedicated to operational areas for field maneuvers, exercises, firing ranges, impact areas, and parachute drop zones.

Fort Bragg is an active U.S. Army installation serving as the major logistic, training, and mobilization deployment center for the XVIII Airborne Corps and the 82nd Airborne Division, which is part of the Army's mobile infantry, assault and armored forces. Fort Bragg's primary mission is the training of airborne troops. Broadly categorized, ongoing operations at Fort Bragg include general maintenance and repair, land management, utility systems operation and commercial activities.

Fort Bragg, originally known as Camp Bragg, was established as a temporary Field Artillery Cantonment on August 21, 1918 on land that was leased with an option to purchase. The design of the initial cantonment area was based on the requirements of two artillery brigades with total troop strength of around 6,000.

The Army designated Camp Bragg as a permanent facility in 1921. In 1922, the Field Artillery Board was transferred from Fort Sill, Oklahoma, and Camp Bragg was redesignated Fort Bragg with its primary mission being the training of troops in the use of artillery.

Additional land was purchased in 1926 and the area of Fort Bragg increased from approximately 51,000 to 121,000 acres. From 1927 to 1939, permanent construction on the post occurred that increased the size of the cantonment area. In 1941, additional land was purchased and the wastewater treatment plant was constructed.

From 1941 to 1946, Fort Bragg was heavily involved with the training of artillery and airborne troops for World War II and troop strength reached over 100,000 during this period. From 1946 to 1951, the 82d Airborne Division was the only large unit at Fort Bragg. During this postwar period, most of Fort Bragg was not in use.

In 1951, the Army established Fort Bragg as the Air Support Headquarters and the XVIII Airborne Corps was activated. Fort Bragg became known as "Home of the Airborne" and its primary mission became training airborne troops.

The Psychological Warfare Center, established in 1952, was later redesignated the Special Warfare Center and renamed the John F. Kennedy Warfare Center in 1965. Additional purchases of land increased the installation to its present size of approximately 200,000 acres. In 1973, Fort Bragg was assigned to Headquarters, U.S. Army Forces Command, Fort McPherson, Georgia.

Camp Mackall, located in Richmond and Scotland Counties and approximately ten miles west of the southwestern corner of Fort Bragg, was purchased in 1943, and developed on approximately 6,600 acres as an airborne troop training post.



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## Cleanup Program Summary

Three, 5,000-foot runways, a hospital, a wastewater treatment plant, a water treatment plant, and 1,963 temporary buildings were constructed. Camp Mackall was deactivated in 1946, and most of the structures were demolished. Camp Mackall has been used as a Special Operations training area since approximately 1952. There is one Military Munitions Response Program (MMRP) site located on Camp Mackall. The site was identified in the Closed, Transferring, and Transferred (CTT) Range Inventory for Camp Mackall and Fort Bragg, the CTT Inventory did not identify any MMRP sites at Fort Bragg.

### **IRP**

- Prior Year Progress: Completed RI/FS at 104.
- Future Plan of Action: Continue LTM at 8 sites, complete CMS and FTBR-069 and 103. Follow recommendations of CMS for groundwater treatment at FTBR-103 and hot spot treatment of groundwater at FTBR-069.

# FORT BRAGG

## Installation Restoration Program

**Total AEDB-R IRP Sites / AEDB-R sites with Response Complete:** 44/34

***Different Site Types:***

|                                    |   |
|------------------------------------|---|
| 3 Disposal Pit/Dry Well            | 2 Sewage Effluent Settling Ponds        |
| 12 Landfill                        | 1 Maintenance Yard                      |
| 2 Oil Water Separator              | 1 Washrack                              |
| 2 Storage Area                     | 2 Surface Impoundment/ Lagoon           |
| 1 Spill Site Area                  | 6 Sewage Treatment Plant                |
| 3 Above Ground Storage Tank        | 5 Underground Storage Tank              |
| 1 Explosive Ordnance Disposal Area | 2 Soil Contamination After Tank Removal |
| 1 Unexploded Munitions/Ordnance    |   |

***Most Widespread Contaminants of Concern:*** POL, PCBs, Metals, Pesticides, Explosives, VOCs, SVOCs

***Media of Concern:*** Soil, Groundwater, Surface Water, Sediment

***Completed Removal (REM)/Interim Remedial Action (IRA)/Remedial Action (RA):***

FTBR-102 Removal of contaminated soil  
FTBR-063 Removal of contaminated soil  
FTBR-035 Removal of Oil/Water Separator and contaminated soil  
FTBR-036 Removal of Contaminated Soil  
FTBR-008, 009, 012 Remedial Action and Land Use Controls  
FTBR-009 Methane Venting  
FTBR-014 Abandoned Landfill 2 & 14

***Total IRP Funding***

|                              |              |
|------------------------------|--------------|
| Prior years (up to FY05):    | \$21,083,230 |
| Current year funding (FY06): | \$ 2,103,000 |
| Future Requirements (FY07+): | \$ 7,118,000 |
| Total:                       | \$30,304,230 |

***Duration of IRP***

Year of IRP Inception: 1980  
Year of IRP RIP/RC: 2007/2017  
Year of IRP Completion including Long-Term Management (LTM): 2017

# IRP Contamination Assessment

## **IRP Contamination Assessment Overview**

Fort Bragg's diversified activities such as vehicle maintenance and repair, land management, utility operations, and commercial processes resulted in a variety of wastes being generated at the installation over time. These wastes consist primarily of the following:

Petroleum Products  
Solvents  
Anti-Freeze  
Metals

Waste Acids  
Paint Products  
PCBs  
Construction/Demolition Debris

Pesticides/Herbicides  
Medical Wastes  
Radiological Wastes

A RCRA Facility Assessment (RFA) was conducted at Fort Bragg and Camp Mackall in 1988. Forty-six (46) solid waste management units (SWMUs) and seven (7) areas of concern (AOCs) were identified as having the potential for release of contaminants to the environment. As a consequence of the 1988 RFA report, thirty-one (31) SWMUs and seven (7) AOCs were listed in Part I of the RCRA Part B Permit as requiring RCRA Facility Investigation (RFI) studies to characterize these sites for the nature, amount, and extent of contamination. In accordance with the RCRA Part B Permit, Fort Bragg identified and evaluated an additional site at the Vocational Technical Training Area, FTBR-102 and Mallonee Village Gas Station, FTBR-103, and the Abandoned Ammunition Supply Point, FTBR-104. No SWMUs or AOCs were identified at Camp Mackall.

Currently there are 10 active sites (two sites, FTBR-069 and 103, are in an investigation phase and eight sites are response complete with LTM under IRP) with 34 Response Complete without LTM sites. Sites FTBR-69 & 103 are the only 2 High RRSE that are not at RIP/RC. The AOC-A site will be addressed using non-ER,A funds.

Fort Bragg has no known off-post contamination. Groundwater underlying Fort Bragg has been shown to be contaminated with solvents, POL, metals and pesticides primarily at FTBR-069 and 103. Groundwater at Fort Bragg is not currently used as a drinking water source.

There are 11 landfills identified in the IRP. The contents of the abandoned landfills are believed to be solid waste, incinerator ash, and/or construction debris. The landfills' typical operation activities included the trench and area methods of landfill. In the trench method, soil is excavated to create a trench, the wastes are compacted into the trench, and the excavated soil is used to cover the waste. The maximum depths of disposal trenches were usually 15 feet below land surface.

The sites listed in this Installation Action Plan are divided into ten Operable Units (OU) and five independent sites (FTBR- 003, 004, 005 103, and 104). ER, A funds are or were used to address sites included in OU1 – OU5. Non-ER,A funds are used to address the sites included in OU 6 – OU 10 The sites included in each OU are defined below. The five independent sites are defined following the OU definitions.

## **OPERABLE UNIT 1**

OU 1 is comprised of FTBR-007, FTBR-030, FTBR-031, and FTBR-B. They are located near the 82<sup>nd</sup> Airborne Division heating plant. OU1 received closure in January 1999.

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## IRP Contamination Assessment

### **OPERABLE UNIT 2**

OU 2 consists of FTBR-012 and FTBR-102. These units are included in the same OU because of their proximity. A RCRA Facility Investigation (RFI) was completed at OU 2 in 1996. The RI/FS (RFI) report was submitted to the federal and state regulators in 1996 and approved in 1997. NFA for SWMU 102 was received 9/14/01. The RA for SWMU 12 was completed in FY04 (fencing and signs). Groundwater and surface water monitoring is underway.

### **OPERABLE UNIT 3**

OU 3 consists of FTBR-014, 008, and 009. FTBR-014 consists of the former FTBR-002 since FTBR-014 overlies part of FTBR-002, which is near Beaver Creek. FTBR-008 and FTBR-009 are included because of their close proximity to each other and to Beaver Creek. The RFI for OU 3 was submitted to regulatory agencies in 1996. CMS/RD was completed. RA was completed in FY05. LTM is in progress.

### **OPERABLE UNIT 4**

OU 4 consists of FTBR-063, 069, E, F, and G. These sites are in the north central portion of the cantonment area. The Final RI/FS (RFI) report for OU 4 was submitted to regulatory agencies in June 1999. An IRA of soil removal, at FTBR-063, was completed in FY00. A Supplemental RFI at FTBR-063 was completed in FY04. LTM is in progress. An Extended RI/FS at FTBR-069 began in FY00. The CMS is scheduled for completion in June 2006.

### **OPERABLE UNIT 5**

OU 5 consists of FTBR-001 and FTBR-077. FTBR-001 is an abandoned landfill encompassing approximately 94 acres. FTBR-077 is the 782<sup>nd</sup> Battery Shop Neutralization Sump. The Final RI/FS (RFI) report was submitted in late FY99. NFA for FTBR-077 was received in FY01. A CMS for FTBR-001 was completed in FY03 and recommended LTM for groundwater. LTM is currently underway.

### **OPERABLE UNIT 6**

OU 6 is comprised of FTBR-016, 086, 088, C, and D, and are funded under the Compliance Cleanup (CC). The sites are located in the eastern part of the cantonment area. RFI report for FTBR016, 068, 088 was submitted in FY01. Extended RFI completed by USACE for 86 & 88. SWMU 16, AOC C, and AOC D received NFA in FY 2003. Monitoring wells at SWMU 16 were abandoned.

### **OPERABLE UNIT 7**

OU 7 consists of ten sites at the current wastewater treatment plant (WWTP). These include FTBR-038 through 040, 042 through 046, 050, and AOC-A. If needed, future actions will be handled under CC. NFA for all sites, except 050, was given by NCDENR in 2005. A FRA of soil removal is planned for 2007 at site 050 under the CC Program.

# IRP Contamination Assessment

## **OPERABLE UNIT 8**

OU 8 consisted of 170 used oil USTs located throughout the cantonment area (FTBR-033). This OU is considered NFA under the IRP, any future action will be addressed under the CC Program.

## **OPERABLE UNIT 9**

OU 9 is FTBR-35, which consists of 235 oil/water separators (OWS) located throughout the cantonment area. CC funds are being used for the OWS investigations. One OWS (Building A-2058) is not in use, and an IRA was completed. A NFA was received in FY01. A NFA for Building 2-3357 was received in February 2003 (OMA funding). A NFA was received for Building 1-1147 in 2002 (OMA funding).

## **OPERABLE UNIT 10**

OU 10 is FTBR-036, 74 washracks located throughout the cantonment area. The washracks will be sampled with CC funds.

**SITES FTBR-003, 004, and 005** are comprised of abandoned landfills. An RFI was completed for each site. Based on the results of the RFIs, NFA for FTBR-003 was approved by NC DENR in FY 94, and a CMS was required for FTBR-004 and 005. The CMSs for FTBR-004 and 005 were completed in FY04 and FY 03, respectively and recommend LTM for groundwater (for VOCs, SVOCs, POLs) and land use controls (LUCs). LTM of groundwater began in FY05.

## **FTBR-103**

Comprised of former Mallonee Village Gas Station. The RFI was completed in FY04. A CMS is scheduled for completion in FY06. Chlorinated solvents are present in the groundwater.

## **FTBR-104**

This site was not identified until FY 03 and is comprised of an abandoned Ammunition Supply Point. White phosphorous grenades were discovered in FY04 and a hazardous waste removal action (to remove soils and contamination from the white phosphorous) was completed in FY04. RFI was completed FY06; currently under review by NCDENR.

## **IRP Cleanup Exit Strategy**

At each of the 8 sites where groundwater monitoring is in progress, four consecutive samples with constituents below NCDENR standards must be collected before applying for NFA. To date, no samples at any of the LTM sites have been below NCDENR standards. Therefore, it is assumed that additional groundwater monitoring will be required. All sites in LTM will have a periodic review after 5 sampling events and will determine future LTM requirements for these sites.

For the two remaining sites in the program: 1 site (FTBR-069) will require CMI(C) beginning in FY06 and CMI(O) beginning in FY07 with LTM following, and 1 site (FTBR-103) will require RD/CMI(C) beginning in FY06 followed by LTM. LTM of groundwater is estimated to be required until FY17.

### 1994

- RCRA Facility Investigation. Operable Unit #2, 8/31/1994, Fort Bragg, North Carolina Volumes I-V
- Fort Bragg Work Plan Amendments for SWMUs 8D and 102, 10/18/1994

### 1995

- RCRA Facility Investigation, Operable Unit 3, 2/2/1995
- Comments to the CAMP for FY95, 2/15/1995
- Proposal to Conduct Site Recon and PA of 525th MI Barracks, 3/2/1995
- Corrective Action Management Plan, 3/20/1995
- Draft RFA for Proposed 525th Military Intelligence Brigade, 4/18/1995, Barracks, Construction Project Site
- Draft RFA for Proposed 525th Military Intelligence Brigade, 6/1/1995, Barracks, Construction Project Site (Revised)
- RCRA Facility Investigation, Operable Unit 2 (Final), 6/20/1995
- US Geological Survey Progress Report, 7/3/1995, RFI April-June 1995
- Request for Extension for IM Workplan for SWMU 102, 7/17/1995
- Review of Soil and Groundwater Sampling Results Collected From OU2, 7/24/1995
- Interim Corrective Measures Plan, OU #2, SWMU 102, 7/24/1995, USGS
- Responses to State comments for 525th Military Intelligence, 7/26/1995, NCDENR
- RCRA Facility Investigation, Operable Unit #4, 8/1/1995, USGS
- Draft Interim Corrective Measures Plan for SWMU 102, 8/15/1995, (OU 2) Sumps A and B Comments
- Comments to draft RFI report for OU 3, 8/16/1995, Fort Bragg, North Carolina (faxed copy rec'd 8/15/95)
- Agenda for August 29, 1995 Meeting between USGS,, 8/28/1995, NC DEHNR, EPA and Fort Bragg
- Interim Corrective Measures Workplan Responses, 9/12/1995, SWMU 102, Fort Bragg, NC
- Interim Corrective Measures Workplan Responses, 9/12/1995, SWMU 102, Fort Bragg, NC
- Schedule of USGS reports submitted to EPA and NCDEHNR, 9/15/1995
- Analyses and detection limit comparisons, 9/15/1995
- Request for Extension to September 14, 1995 for submittal of, 9/18/1995, Final Corrective Measure Plan, OU 2, SWMU 102
- Interim Corrective Measures Plan for Operable Unit #2, 9/18/1995, Final Report
- Revised Draft RCRA Facility Investigation Report, June 1995 OU2, 9/27/1995, USGS
- Laboratory Data for the ICMP, 9/29/1995
- USGS Progress Report, RFI July -- September 1995, 10/2/1995, USGS
- USGS Progress Report, RFI July -- September 1995, 10/3/1995, USGS
- USGS, Baseline Risk Assessment for 525th, 10/3/1995, Military Intelligence Brigade Barracks
- Request for Approval for Fort Bragg to remove wells at SWMU-12, 10/4/1995, Fort Bragg
- Maps/figures and additional information re: replacement of monitoring wells Fort Bragg, 10/12/1995, USGS



### 1995 (continued)

- Request for assistance in bringing the IRP program to closure, 10/19/1995, Fort Bragg
- Review of Baseline Risk Assessment for 525th MI Brigade, 11/1/1995, Barracks Construction Site (proposed)
- Memorandum of minutes of the August 29, 1995 meeting for OU3 meeting, 11/1/1995, Scribe
- Response to comments, Revised Draft RFT OU #2, 11/9/1995, June 1995, Fort Bragg, NC
- Geohydrologic Study: Investigation of Groundwater, 11/13/1995, Contamination at AAFES and VTTA
- Letter summarizing the proposed reporting limits changes for Fort Bragg, 12/5/1995
- FY96 IRP Program Projection, 12/22/1995

### 1996

- Memorandum: Scoping Meeting for 525th Military Intelligence, 1/16/1996, Barracks Construction Site
- Detailed Program Update for the Proposed 525th MI Barracks, UST Information, 1/29/1996
- Scoping Memorandum/Feb 13, 1996 meeting to discuss HEA for OU2, SWMUs 102 and 12, 2/15/1996
- SSE forms for SWMUs 12 and 102, 3/8/1996
- Memorandum from J. Williams: Minutes from February 13, 1996, 3/21/1996, Fort Bragg
- RCRA Facility Investigation, Operable Unit 2, 4/15/1996, Final Administrative Report
- Workplan for additional sampling at OU3, 4/18/1996
- Mystery Analytical Data dated 12/15/95, 4/22/1996
- CERFA Letter Report for Recreation Center #2, 4/22/1996
- US Army Base Realignment Closure 95 Program, 4/22/1996, Environmental Baseline Survey Report, Rec Ctr #2
- Sump Soil Excavation SWMU 102, 5/2/1996
- Interim Corrective Measures Plan for SWMU 102 (OU2), 5/2/1996, Sumps A and B
- Groundwater Sampling Low-Producing Wells--Fort Bragg, 5/3/1996, Installation Restoration Program (IRP), North Carolina
- Pre- and post-grading soil elevation comparisons for SWMU, 5/13/1996, 102, OU #2
- Letter confirming the additional sampling to occur at SWMU 5, 5/14/1996, Meeting between USGS and DEHNR
- Proposed Scope of Work, Recreation Center #2, 5/15/1996
- Draft RCRA Facility Investigation Report for OU4: SWMUs 63, 69, and AOCs E, F, and G, 5/24/1996
- Analytical Data, ICMP OU2, SWMU 102, 5/29/1996, Removal of Pb- and TPH-contaminated soil
- USGS discussions with Fort Bragg, EPA and NCDEHNR, 6/19/1996, Minutes from the June 12, 1996 meeting
- Draft Corrective Action Management Plan, 6/20/1996
- US Geological Survey Responses to USEPA comments to RFI Report SWMUs 4 and 18, 7/10/1996, USGS
- Interim Corrective Measures, Operable Unit 2, SWMU 102, 7/12/1996



### 1996 (continued)

- Draft USGS letter summarizing work required to close out SWMU 3, 7/19/1996, USGS
- Scope of Work for Comprehensive Site Assessment, Rec Center (BRAC), 7/24/1996, USACE
- Final RCRA Facility Investigation Report and letter report, 8/12/1996, addendum for SWMU 3
- Transmittal of Documents Promised from the June 20, 1996, 8/13/1996, meeting w/attachments (chklist & GIS overlay)
- Information re: wells at Young's Lake (maps, Subsurface), 8/13/1996, Investigation and sampling data for monitor wells)
- Fax memorandum: SWMU 12, Young's lake landfill, 8/14/1996
- Solid Waste Management Unit 5, Final Report and Letter Rpt, 8/28/1996, Addendum with analytical data
- Progress Report for Recreation Center #2, Fayetteville, NC, 9/3/1996, Comprehensive Site Assessment
- Draft Agenda, September 17, 1996 Meeting at NC State Offices, 9/6/1996
- Detailed Program Update on the 525th Military Intelligence, 9/16/1996, Brigade Barracks Construction Project
- Draft Work Plans for the Comprehensive Site Assessment (CSA) Recreation Center #2, Fayetteville, NC, 9/17/1996
- Request for Deadline Extension, Final Fort Bragg RFI Report OU3, Granted by EPA, 9/17/1996
- Memo: Abandoned Construction Debris Landfill, SWMU 12, 9/24/1996
- Solid Waste Management Unit 3 -- Fort Bragg, Concurrence w/USGS recommendation for NFA for SWMU 3, 9/27/1996
- Meeting Notes, September 17 -- 18, 1996 w/ NCDEHNR, USGS, Fort Bragg Environmental Staff, 9/30/1996
- Final RCRA Facility Investigation Report with letter report addendum for SWMU 5, Fort Bragg, NC, 9/30/1996
- Corrective Action Management Plan (CAMP) FY 1996, 9/30/1996,
- Meeting Notes, September 17 -- 18, 1996, Fort Bragg IRP meeting with DEHNR and EPA in Raleigh, 10/3/1996
- RCRA Part B Permit Questions, 10/23/1996
- Solid Waste Management Units 4 & 18, 10/31/1996
- Final BRAC Cleanup Plan Abstract and Draft Final Environment Baseline Survey Report, Recreation Center #2, 10/31/1996
- Minutes from the October 18, 1996 meeting with Zapata, US COE Savannah, and Fort Bragg (BRAC), 11/4/1996
- Fiscal Year 1997 Corrective Action Management Plan, 11/8/1996
- Verbal request for time extension for Final RFI for OU # 3, 11/18/1996
- Fort Bragg Recreation Center #2, Field Trip #1, Preliminary Soil Boring Locations, 11/27/1996
- Request for Deadline Extension -- Final Fort Bragg RFI Report, OU #3, 11/25/1996,
- Notification of intent to construct at SWMU 18, 12/4/1996
- Meeting Notes, December 11, 1996 Fort Bragg/EPA/DEHNR/USGS, 12/17/1996
- RCRA Facility Investigation at Operable Unit 3, Fort Bragg, 12/18/1996

### 1997

- Memorandum: SWMU 14 soil piles, 1/3/1997
- Preliminary Data from the BRAC CSA of the Recreation Ctr #2, 1/15/1997
- Fort Bragg RFI, SWMU 5, Surface Soil Risk Calculations, 1/18/1997
- Proposed changes for the analysis of Oil and Grease in environmental samples collected for the Fort Bragg RFI prog., 1/22/1997
- Proposed changes for the analysis of oil and grease in environmental samples collected as part of the RFI, 1/23/1997
- Meeting Notes, January 15, 1997, Meeting w/Zapata, CESAS, NCDEHNR, and Fort Bragg DPWE, 1/24/1997
- Memorandum: Construction of Storage Building at Landfill 18 (SWMU 18), 1/28/1997
- USGS letter regarding the proposed changes to the RFI rept appendices (in reference to the OU 3 Final RFI report), 1/28/1997
- Workplan for additional sample collection at SWMUs 4 & 18, 1/28/1997
- US Army Base Realignment and Closure 95 Program Environmental Baseline Survey Report, Rec Ctr #2, 1/29/1997
- RCRA Facility Investigation Final Report -- Operable Unit 2 from US EPA, 2/11/1997
- Work Plan, OU 5, Fort Bragg IRP Proposed Work Plan for OU 5, 2/15/1997
- Letter concurring with the recommended changes to the RFI appendices in USGS letter dated January 27, 1997, 2/21/1997
- Work Plan for Additional Sampling at SWMUs 4 & 18 EPA letter w/attach: reservations about gw sampling methods, 2/24/1997
- Responses to DEHNR review comments on the Draft RCRA Facility Investigation Report for OU 4, 3/14/1997
- Fort Bragg IRP, Draft Workplan for Operable Unit 4, 3/14/1997
- Work Plan for Additional Work at OU 5 (SWMUs 1 & 77), 3/17/1997, Letter from US EPA
- Fort Bragg IRP, Draft Workplan, Operable Unit 6, 3/17/1997
- Addendum to OU 5 Work Plan, 4/7/1997
- Waste vs. Used Oil (Memorandum), 4/11/1997
- Fort Bragg Response to NCDEHNR Comments on SWMU 5 Soil Risk Calculations, 4/14/1997
- Work Plan for Additional Work OU4 (SWMUs 63, 69, and AOCs E, F, & G) Responses to Comments on OU4 RFI (R. Pope-USEPA), 4/15/1997
- Work Plan for Additional Work at OU5 (SWMUs 1 & 77), US EPA, 4/15/1997
- Meeting Notes, March 26, 1997, 4/17/1997
- Corrective Action Plan, Faith Barracks Energy Plant, Fort Bragg, North Carolina US ACE Savannah Document, 4/29/1997
- Fayetteville Recreation Center #2, April Meeting Minutes, 4/29/1997
- Responses to NC DEHNR Human Health and Ecological Risk Assessment for Operable Unit #3, 5/19/1997
- Addendum to Draft Work Plan for Operable Unit #4, 5/19/1997
- Results of the application of seismic-reflection and electro magnetic techniques for near-surface hydrogeologic... invest, 6/20/1997
- Quarterly Meeting Action Item: Project Management Tool, 8/15/1997

### 1997 (continued)

- Restoration Advisory Board Information for the USO/Rec Center #2 in Fayetteville, NC, 9/16/1997
- Fort Bragg RFI -- Investigation-Derived Waste, 9/26/1997
- Missing Lab Data to complete review of PRE for SWMUs 4 & 18 on loan from USGS, 10/30/1997
- Fiscal Year 1998, Corrective Action Management Plan Via Fax, 10/31/1997
- Fiscal Year 1998 Corrective Management Plan Fort Bragg (hard copy), 11/3/1997
- Fiscal Year 1998 RCRA CAMP from EPA Region IV, 12/18/1997

### 1998

- Response to Comments OU-3 Human Health and Environmental Assessment, 2/25/1998
- Zapata Engineering's Review Actions to NCDENR's 9/97 comments re: Draft CSA of the Recreation Center #2, 3/31/1998
- Draft Agenda for the Tier I Partnering Meeting on May 27 & 28, 1998 in Raleigh, NC: Host: USGS, 4/17/1998
- Letter report for groundwater confirmation samples collected at the 525th Military Intelligence Brigade Barracks Site, 4/24/1998
- Replacement page 3 to Letter report for groundwater confirmation samples collected at 525th Military Intelligence Bcks, 4/27/1998
- Minutes from the Fort Bragg Partnering Meeting March 25, 1998 at Fort Bragg (by consultant), 5/4/1998
- Agenda for the May 27, 1998 Partnering Meeting for Fort Bragg at USGS Office in Raleigh, 5/5/1998
- Minutes from the Fort Bragg Partnering Meeting March 25, 1998 at Fort Bragg (fax from consultant), 5/7/1998
- Request/Notification of Intent to construct a 3-story bldg at the location of SWMU 4 , 5/11/1998
- Final Fiscal Year 1998 Corrective Action Management Plan, 5/14/1998
- Letter Report of Groundwater Samples Collected at SWMUs 2 & 14 (OU #3), 6/1/1998
- Draft agenda for the July 22-23, 1998 Fort Bragg Partnering Team (Virginia Beach, VA), 6/15/1998
- Approved Partnering Meeting Minutes for Fort Bragg, March 25 1998 meeting (Fort Bragg, NC), 6/15/1998
- Draft minutes, Partnering Meeting, May 27, 1998, Fort Bragg, (USGS Office, Raleigh, NC), 6/15/1998
- Hotel Information re: July 1998 Fort Bragg Partnering Mtg Virginia Beach, VA, 6/15/1998
- Schedule for the RCRA Corrective Action Management Plan for Fiscal Year 1998, 6/29/1998
- Record of Communication: From NCDENR to File Room re: Ft. Bragg's request to construct on SWMU 4, 6/30/1998
- Memorandum from Hazardous Waste Section re: SWMU 5 and SWMU 4 , 7/14/1998
- Responses to DENR comments on the draft CSA Report Recreation Center #2, Fayetteville, NC, 7/28/1998

### 1998 (continued)

- Work Plan for Corrective Measures Study (CMS) and Remedial Design for Operable Unit (OU) #2, SWMUs 12 & 102, 8/7/1998
- Agenda for Partnering Meeting August 12 - 13, 1998, at Virginia Beach, VA, 8/7/1998
- Request NFA for SWMU 77 and AOC E and F, 11/4/1998
- Request to remove OU7, OU8, OU9, OU10 from IRP, 12/4/1998
- Response to comments on CMS/RD Workplan for OU2 , SWMUs 8, 9, 2, and 14, Abandoned Landfills, 12/22/1998
- RFI at SWMUs 4 and 18 - Final Report. Comments requested for RFI extension, 12/28/1998

### 1999

- AOC E&F Closure Report, 1/20/1999, Environmental Division
- Clarification on CMS/RD Workplan Comment Responses for OU2, SWMU 102 and SWMU 12, 1/25/1999, SAIC
- AOC G - UST Closure Report - Request NFA, 1/27/1999, Earth Tech - Warren Air Conditioning
- Preliminary Organic Analysis for SWMU 63 & 69, 1/27/1999, USGS
- CAMP Fiscal Year 1999, 1/27/1999, Installation Records
- Fax - Contours of TCE contamination, area east of SWMUs 4 and 18 (RFI extension), 2/1/1999, EPA
- Final CMS/RD Workplan, SWMU12 and 102, OU2, Addendum Sampling and Analysis Plan, Site Safety and Health Plan, 2/8/1999, SAIC Engineering
- CMS/RD for OU3 - SWMUs 8, 9, 2, 14 Workplan, SSHP, Addendum Sampling and Analysis Plan, 2/18/1999, SAIC
- SWMUs 4 & 18 - EPA concurrence to delay CMS study , 2/18/1999, EPA
- OU3 - Fig. 2-2 replacement page for Draft Final Workplan, 3/3/1999, COE
- Summary of Proposed Work, Extended RFI SWMUs 4 & 18, 3/3/1999, COE
- Request NFA for AOCs C, D, G, closure report, 3/3/1999, Ft. Bragg
- Final CSA for Rec Center #2, 3/24/1999,
- EPA comments on OU3 CMS/RD workplan, 4/6/1999, EPA
- Draft Final SAP for 525th MIB, 4/27/1999, COE
- Field Investigative Report for CMS/RD OU2 (SWMUs 12 and 102), 4/30/1999, COE
- Final RFI OU4, 5/4/1999, USGS
- Revised Summary of Proposed Work, Extended RFI, SWMUs 4 & 18, 5/5/1999, COE
- Historical information regarding SWMU 77 site - Construction record and maps, 5/5/1999
- CMS/RD for OU3 - Response to comments, 5/18/1999, SAIC Engineering
- Information regarding the operation of OU7, OU9, OU10, 6/16/1999
- Draft Final RFI OU6 Workplan, 6/16/1999, USCHPPM
- OU2 Response to Comments - Field Investigation Report, CMS/RD, 7/28/1999, COE
- Confirmation Sampling 525th MIB - Final Report, 7/30/1999, COE
- Summary of SOW for SWMUs 4 & 18 for Extended RFI, 8/9/1999, COE
- Additional information concerning OWS and washracks (OU9 and OU10) in support of NFA request , 8/11/1999
- RFI Final Report, OU5, 8/24/1999, USGS

### 1999 (continued)

- RCRA Facility Investigation at Operable Unit 5, Final Report , 8/24/1999, USGS
- SWMU 63 post excavation sampling results, 9/7/1999
- Rec Center #2 - Report on Field Investigation and Sampling by the City of Fayetteville and CP&L, 9/15/1999
- OU3 Final Workplan and Addenda, 9/28/1999, SAIC Engineering
- Draft SAP and SSHP Methane Survey SWMU 12 and SWMU 8a, 11/9/1999, SAIC Engineering

### 2000

- SWMU 63 post excavation sampling results (additional excavation) for concurrence to backfill excavation, 1/24/2000
- SWMU 63 Workplan for soil excavation and "Closure Report" (Excavation results), 1/31/2000, COE
- Additional information concerning OWS and washracks (OU9 and OU10) in support of NFA request , 2/24/2000
- Draft SAP for Extended RFI - SWMUs 4 and 18, 2/28/2000, SAIC
- Additional information (OWS survey) concerning SWMU 88 and OU6 Workplan, 3/1/2000
- Errata pages to Addendum #2, SAP for Methane Survey, CMS/RD, SWMU 12, SWMU 8a, SWMU 9, 3/9/2000, COE
- Draft Sampling and Analysis Plan for Extended RFI at SWMU's 4 & 18, COE
- Field Investigative Report for CMS/RD OU3 (SWMUs 8, 9, 2 & 14), 3/29/2000, SAIC Engineering
- Revised pages for the SAP for Extended RFI-SWMU's 4 and 18: Final Plan , 5/12/2000, SAIC
- Received a copy of 9/2/99 letter from UST Section, Fayetteville Regional Office, indicated NFA for OU4: AOC E., 6/15/2000, Ft. Bragg
- RFI Work Plan for OU6, 6/19/2000, USACHPPM
- Interim Measures Report for SWMU 102 (Resubmitted), 8/3/2000, Ft. Bragg
- SWMU 69 Well Re-Sampling Work Plan, 9/13/2000, COE
- Addendum #2 Sampling and Analysis Plan and Site Safety and Health Plan for the Additional Methane and Groundwater Sampling at OU3, 9/28/2000, SAIC Engineering
- Draft Field Investigation Report for the Phase I RFI at Mallonee Village, SWMU 103, 10/12/2000, SAIC
- Report of Environmental Services and Removal of Oil/Water Separator at Building 2-3357, 10/12/2000, Ft. Bragg
- Final Field Investigation Report for the Phase I RFI at Mallonee Village Gas Station, SWMU 103, 11/1/2000, SAIC
- Draft Workplan Addendum for Former Building A-2058 Oil/Water Separator Removal, 11/21/2000, Horne Engineering Services

### 2001

- Draft LUCAP transmitted by e-mail for review, 1/19/2001, Ft. Bragg
- Supplemental Groundwater Monitoring Well Sampling Report for SWMU 69, 1/18/2001, USACE



### 2001 (continued)

- Final Addendum #2 Sampling and Analysis Plan and Site Safety and Health Plan for the Additional Methane and Groundwater Sampling for the CMS/RD at OU3, 2/1/2001, SAIC
- Draft Addendum to the S&A Plan for the Extended RFI at SWMU's 4 & 18 and Mallonee Village Gas Station (SWMU 103), 2/13/2001, SAIC
- Draft Addendum #3 S&A Plan and Site Safety and Health Plan for the Additional Methane Survey and Groundwater Sampling for the CMS/RD for OU2: SWMUs 12 and 102, 2/15/2001, SAIC
- Draft Workplans for the Supplemental RCRA Facility Investigation and Corrective Measures Study at SWMU 1, 4/30/2001, Zapata Engineering
- Draft Work Plans for the Supplemental RCRA Facility Investigation and Corrective Measures Study at SWMU 63, 4/30/2001, Zapata Engineering
- Baseline Risk Assessment for Administrative Closure of Range 70, 4/2/2001, URS
- Final Letter Report, A-2058 Oil/Water Separator Removal, 5/23/2001, Horne Engineering Services
- Draft Field Investigation Letter Report for the Additional Methane Survey and GW Sampling for the CMS and RD for OU2: SWMUs 12 and 102, 6/1/2001, SAIC
- Draft Field Investigation Letter Report for the Additional Methane Survey and GW Sampling for the CMS and RD for OU3: SWMUs 8, 9, and 2 & 14, 6/1/2001, SAIC
- Work Plan for Supplemental RFI Investigation at SWMU 69, 7/11/2001, USACE
- Draft Letter Report for the Supplemental RFI and CMS at SWMU 63, 8/27/2001, Zapata
- Draft Letter Report for the Supplemental RFI and CMS at SWMU 1, 8/27/2001, Zapata

### 2002

- Final CMS for Abandoned Landfill, SWMU 12, 3/14/2002, SAIC
- Draft CMS for OU3: SWMU 8,9, and 14, 3/15/2002, SAIC
- Draft CMS for OU3: SWMUs 8, 9, and 14 and Draft Appendix A - SCM for CMS at OU3: SWMUs 8, 9, and 14, 3/15/2002, SAIC
- Draft Work Plan for Supplemental RFI Investigation at OU6, 4/3/2002, COE, Savannah
- Draft Site Conceptual Model for Supplemental RFI at SWMU 69, 4/3/2002, USACE
- Revised Final CMS for Abandoned Landfill, SWMU 12, Within OU2, 6/7/2002, SAIC
- Draft Remedial Design Analysis for SWMU 12: 3 Volumes, 6/21/2002, SAIC
- Final Sampling and Analysis Plan for Boundary Delineation of PCB-Contaminated Soil at SWMU 8, 7/15/2002, SAIC
- Site Conceptual Model Report for the Supplemental RFI Investigation of SWMU 69, 9/25/2002, COE
- Addendum to the Workplan for the Supplemental RFI for SWMU 69, 9/25/2002, COE
- Draft Supplemental RFI and CMS for SWMU 63, 11/18/2002, Zapata
- Draft Supplemental RFI and CMS for SWMU 1, 11/18/2002, Zapata
- Final Letter Report, Supplemental Soil Sampling for Oil/Water Separator Removal at 2-3357, 1/15/2003, USACE

### 2003

- Draft Report of Supplemental RFI at OU6, 11/19/2002 & 03/12/2003, USACE
- Final Supplemental RFI/CMS at SWMU 5, 3/27/2003, SAIC

### 2003 (continued)

- Final Corrective Measures Studies at OU3, Volumes 1 through 4, 4/2/2003, SAIC
- Final Supplemental RFI/CMS at SWMU 1, 4/16/2003, Zapata
- Draft Preliminary Data Summary Report for the Field Investigation for the Extended RFI for the Former Mallonee Village Gas Station (SWMU 103), 5/7/2003, SAIC
- Final Remedial Design Analysis for Abandoned Landfill, SWMU 12, Volumes 1, 2, and 4, 5/13/2003, SAIC
- Final Work Plan, Long Term Ground Water Monitoring at SWMU 1, 6/20/2003, USACE
- Final CMS for OU3, Volumes 2 through 4, 7/2/2003, SAIC
- Final Remedial Design Analysis for Abandoned Landfill, SWMU 8, 7/2/2003, SAIC
- Final Remedial Design Analysis for Abandoned Landfill, SWMU 9, 7/2/2003, SAIC
- Final Remedial Design Analysis for Abandoned Landfill, SWMU 14, 7/2/2003, SAIC
- Final Preliminary Data Summary Report for the Extended RFI for SWMU 103, 7/11/2003, SAIC
- Draft Addendum #5 to the Sampling and Analysis Plan for the Extended RIF at SWMU 103, 7/11/2003, SAIC
- Revised Final Supplemental RFI/CMS for Abandoned Landfill, SWMU 5, 7/11/2003, SAIC
- Letter Report for Underground Solvent Tank Investigation at Buildings 2-2809 and 2-2412 (In conjunction with SWMU 69 Investigation), 8/27/2003, COE
- Final Addendum #5 to the Sampling and Analysis Plan for the Extended RCRA Facility Investigation at Mallonee Village Gas Station (SWMU 103), 9/2/2003, SAIC
- Final Construction Workplan for Remedial Action at SWMU 12, 9/9/2003, JJ Sosa
- Draft Site Safety and Health Plan for Remedial Action at SWMU 12, 9/11/2003, JJ Sosa
- Site Conceptual Model Report for the Supplemental RFI of SWMU 69, Revised August 2003, Volumes I and II, 9/11/2003, USACE
- Final Report for Supplemental RCRA Facility Investigation at OU6, Volumes I and II, 9/11/2003, USACE
- Revised Final Construction Workplan for Remedial Action for SWMU 12 , 11/19/2003, JJ Sosa
- Revised Pages for the Revised Final Construction Workplan for Remedial Action for SWMU 12, 12/12/2003, JJ Sosa

### 2004

- Final Supplemental RFI and CMS at SWMU 63, 1/20/2004, Zapata
- Draft Preliminary Data Summary Report for the Field Investigation for the Extended RFI (September 2003) for the Former Mallonee Village Gas Station (SWMU 103), 2/11/2004, SAIC
- Final Corrective Measures Study for SWMUs 4 & 18, 3/11/2004, SAIC
- Revised pages for the Final Supplemental RFI and CMS at SWMU 63, 3/12/2004, Zapata
- Revised Pages for the Final Preliminary Data Summary Report for the Field Investigation for the Extended RFI for the Mallonee Village Gas Station (SWMU 103), 3/29/2004, SAIC
- Draft Site Construction Report for Remedial Action for SWMU 12, 4/28/2004, JJ Sosa

### 2004 (continued)

- Revised Pages for the Final Preliminary Data Summary Report for the Field Investigation for the Extended RFI for the Mallonee Village Gas Station (SWMU 103), 3/29/2004, SAIC
- Final Site Conceptual Model Report for Former Mallonee Village Gas Station (SWMU 103) and Vicinity that Includes SWMUs 4&18 and SWMU 5, 6/22/2004, SAIC
- Compliance Monitoring Report for LTM at SWMU 12, 8/5/2004, JJ Sosa
- Draft RCRA Facility Investigation for the Former Mallonee Village Gas Station (SWMU 103), 8/10/2004, SAIC
- Draft Corrective Measure Implementation Report for White Phosphorus Practice Grenade Material Removal, 8/5/2004, Zapata
- Final Work Plan for Remedial Action/Long Term Monitoring for SWMUs 8, 9, and 14 Within Operable Unit 3, 8/30/2004, BHATE
- Report on the Second Sampling Event for Long Term Groundwater Monitoring at SWMU 1, 9/6/2004, USACE
- Revised Pages for the Final Work Plan for Remedial Action/LTM for SWMUs 8, 9, and 14 Within OU3, 9/23/2004, BHATE
- Final RCRA Facility Investigation for the Former Mallonee Village Gas Station (SWMU 103), 9/17/2004, SAIC
- Revised Final Site Conceptual Model Report for Former Mallonee Village Gas Station (SWMU 103) and Vicinity that Includes SWMUs 4 and 18 and SWMU 5, 9/20/2004, SAIC
- Draft Addendum #6 to the Sampling and Analysis Plan for the Pilot Studies to Support the Corrective Measures Study at Mallonee Village Gas Station (SWMU 103), 9/13/2004, SAIC
- Draft Report on the First Additional Groundwater Sampling Event as Part of the Supplemental RCRA Facility Investigation at OU6, 9/20/2004, USACE
- Draft Work Plan for RCRA Facility Investigation (RFI) at Wastewater Treatment Plant, OU7, and Water Treatment Plant AOC A., 10/11/2004, Zapata
- Final Addendum #6 to the Sampling and Analysis Plan for the Pilot Studies to Support the Corrective Measures Study at Mallonee Village Gas Station (SWMU 103): Volume 1, Field Sampling Plan and Volume 2, North Carolina UIC Program Permits., 11/10/2004, SAIC

### 2005

- Final Work Plan for RCRA Facility Investigation (RFI) at Wastewater Treatment Plant OU7 (WWTP) and Water Treatment Plant AOC A (WTP), 1/7/2005, Zapata
- Final Ordnance and Explosive Corrective Measure Implementation Report for White Phosphorus Practice Grenade Material Removal near SWMU 104, Volumes I and II, 2/1/2005, Zapata
- Draft Compliance Monitoring Report (Third Sampling Event) for Remedial Action for SWMU 12 Within Operable Unit 2, 2/1/2005, JJ Sosa
- Revised Final Addendum #6 to the Sampling and Analysis Plan for the Pilot Studies to Support the Corrective Measures Study at Mallonee Village Gas Station (SWMU 103) Volume 1: Field Sampling Plan and Volume 2: North Carolina Underground Injection Control Program Permit, 2/25/2005, SAIC



### 2005 (continued)

- Soil Sampling for PCBs Fire Station 1 at Knox Street and Honeycutt Road, USACE-Savannah, 3/15/2005
- Rapid Response Soil Sampling Results for Scott Street Warehouse #2, USACE-Savannah, 3/18/2005
- Draft Compliance Monitoring Report , Sampling Event 1, for Remedial Action/Long Term Monitoring for SWMU 9, BHATE, 2/1/2005
- Compliance Monitoring Report, Sampling Event 1, for Remedial Action/Long Term Monitoring for SWMU 8., BHATE, 1/10/2005
- Draft Corrective Measures Study for SWMU 69 Former Jeep Dismantling Area, USACE-Savannah, 5/17/2005
- Draft Work Plan for RCRA Facility Investigation (RFI) at SWMU 104, Zapata, 6/13/2005
- Draft RCRA Facility Investigation (RFI) Report for the Wastewater Treatment Plant (WWTP) and AOC A, Zapata, 6/18/2005
- Final RCRA Facility Investigation (RFI) Report for the Wastewater Treatment Plant (WWTP) and AOC A, Zapata, 8/12/2005
- Final Work Plan for Long Term Groundwater Monitoring at SWMU 63, Zapata Engineering, 7/22/2005
- Draft Report on the Third Sampling Event for Long Term Groundwater Monitoring at SWMU 1, USACE, 7/5/2005
- Final RCRA Facility Investigation (RFI) Report for the Wastewater Treatment Plant (WWTP) and AOC A, Zapata, 8/12/2005
- Draft Report on the Second Additional Ground-Water Sampling Event as Part of the Supplemental RCRA Facility Investigation at OU6, USACE, 7/5/2005
- Final Compliance Monitoring Report (Second Sampling Event) for Remedial Action for SWMU 12 Within Operable Unit 2, JJ Sosa, 8/25/2005
- Final Compliance Monitoring Report (Third Sampling Event) for Remedial Action for SWMU 12 Within Operable Unit 2, JJ Sosa, 10/5/2005
- Draft Corrective Measures Study for SWMU 103, SAIC, 12/2/2005
- Final Work Plans for RCRA Facility Investigation (RFI) at SWMU 104, Zapata, 8/16/2005
- Draft Report for Long Term Ground-Water Monitoring at SWMU 63, Volumes 1 and 2, USACE, 12/7/2005
- Final Field Documentation and Closure Reports for FY05 Oil Waster Separator Removals, JJ Sosa, 8/25/2005
- Final Work Plan for Remedial Action/Long Term Monitoring for SWMUs 4, 18, and 5, Bhate, 9/14/2005

### 2006

- Final Compliance Monitoring Report, Sampling Event 1, for SWMUs 4&18, BHATE, 1/4/2006
- Final Compliance Monitoring Report, Sampling Event 1, for SWMU 5, BHATE, 1/4/2006
- Compliance Monitoring Report, Sampling Event 1, for SWMU 14, BHATE, 1/4/2006
- Letter Report for RCRA Facility Investigation (RFI) at Solid Waste Management Unit (SWMU) 104, Zapata, 12/1/2005
- Compliance Monitoring Report, Sampling Event 2, SWMUs 8, 9, BHATE, 1/4/2006

# FORT BRAGG

## Installation Restoration Program Site Descriptions

# FTBR-001 ABANDONED LANDFILL 1 (OU5)

## SITE DESCRIPTION

FTBR-001 is an abandoned, solid waste landfill, located on the south side of Gruber Road near the intersection of Gruber Road and Merrill Street in the cantonment area. The landfill is bordered on the east by a north-south drainage ditch and on the south by an intermittent northwest-southeast tributary to Big Branch Creek. The 94-acre, unlined landfill operated from the early 1940s to 1951. Three vehicle maintenance facilities including motor pools, and paved parking lots were constructed on top of most of the site.

Because of an erosion control project in Big Branch Creek near the site, the State agreed that surface water/stream bed sediment samples would not be required.

Early stages of the RFI revealed metals, pesticides, and volatile organic compounds in the soil, and low levels of solvents were found in the groundwater. The Final RFI was submitted late FY99. The CMS, completed in FY03, recommended LTM for groundwater only. LTM is underway. DD was signed in FY03. Institutional controls and GIS layers in Base Master Plan (BMP) were implemented thereafter.

Annual certification of the institutional controls will be documented in the RCRA Part B Permit.

Four rounds of sampling have been completed. Continue to have exceedances of NCDENR groundwater standards.

## CLEANUP STRATEGY

LTM of 15 groundwater wells, of which, 8 wells will be monitored for VOCs, SVOCs, RCRA Metals every nine months. Four consecutive sampling events with no exceedances of North Carolina groundwater standards are required prior to requesting a NFA.

## STATUS

**REGULATORY DRIVER:** RCRA, Subtitle C

**RRSE:** High

**CONTAMINANTS OF CONCERN:** Metals, Petroleum Hydrocarbons, VOCs, SVOCs

**MEDIA OF CONCERN:** Groundwater

| Phases       | Start        | End    |
|--------------|--------------|--------|
| RFA .....    | 198805 ..... | 198805 |
| CS .....     | 199008 ..... | 199009 |
| RFI/CMS..... | 199902 ..... | 200309 |
| LTM .....    | 200309 ..... | 201509 |

**RC DATE:** 200309

# FTBR-004

## LANDFILL 4 & FIRE PITS 18

### SITE DESCRIPTION

This site consists of an abandoned landfill and fire training pits (formerly FTBR-018). The abandoned landfill is located southeast of the intersection of Honeycutt Road and Knox Street in the central part of the cantonment area. The 10-acre landfill was active between 1961 and 1966. No known records exist to indicate the types of waste that were disposed there.

Two fire-training pits were constructed on the northern half of FTBR-004. Use of the fire pits began in 1966, and the pits were lined with sand, until 1978, when they were lined with concrete and drainage was directed to an oil/water separator located between the pits.

A RFI report was submitted in 1998. Elevated levels of some contaminants indicated the need for additional sampling. The wells were sampled in FY01-02, and indicated that metals, VOCs, SVOCs and petroleum hydrocarbons were above NC groundwater standards.

The CMS, completed in FY04, recommended LTM for groundwater only. LTM is underway. DD was signed in FY04. Institutional controls, and GIS layers in the BMP were implemented thereafter.

Annual certification of the institutional controls will be documented in the RCRA Part B Permit.

First round of sampling was conducted July 2005. Continue to have exceedances of NCDENR groundwater standards.

### CLEANUP STRATEGY

LTM of 15 groundwater wells, of which, 13 wells will be monitored for VOCs, SVOCs, RCRA Metals every nine months. Four consecutive sampling events with no exceedances of North Carolina groundwater standards are required prior to requesting a NFA.

### STATUS

**REGULATORY DRIVER:** RCRA, Subtitle C

**RRSE:** High

**CONTAMINANTS OF CONCERN:** Solvents, Petroleum Hydrocarbons, Lead

**MEDIA OF CONCERN:** Groundwater

| Phases       | Start        | End    |
|--------------|--------------|--------|
| RFA .....    | 198805 ..... | 198805 |
| CS .....     | 199008 ..... | 199009 |
| RFI/CMS..... | 199110 ..... | 200409 |
| LTM .....    | 200411 ..... | 201509 |

**RC DATE:** 200409

# FTBR-005 ABANDONED LANDFILL 5

## SITE DESCRIPTION

FTBR-005 is an abandoned, solid waste landfill, in the vicinity of Knox and Honeycutt Rd., east of the Earth Terminal Complex. It covers ~seven acres in the central portion of the cantonment area. The unlined landfill was active between 1966 and 1967.

Results of sampling and analysis indicate the presence of contaminants of concern indicated in the Status Box that exceed North Carolina groundwater standards.

The CMS, completed in FY03, recommended LTM for groundwater only. LTM is underway. DD was signed in FY03. Institutional controls and GIS layers in the BMP were implemented thereafter.

Annual certification of the institutional controls will be documented in the RCRA Part B Permit.

First round of sampling was conducted July 2005. Continue to have exceedances of NCDENR groundwater standards.

## CLEANUP STRATEGY

LTM of 10 groundwater monitoring wells. Wells will be sampled for VOCs, SVOCs, RCRA Metals every nine months. Four consecutive sampling events with no exceedances of North Carolina groundwater standards are required prior to requesting a NFA.

## STATUS

**REGULATORY DRIVER:** RCRA, Subtitle C

**RRSE:** High

**CONTAMINANTS OF CONCERN:**  
Petroleum Hydrocarbons, VOCs

**MEDIA OF CONCERN:**  
Groundwater

| Phases        | Start        | End    |
|---------------|--------------|--------|
| RFA .....     | 198805 ..... | 198805 |
| CS .....      | 199008 ..... | 199009 |
| RFI/CMS ..... | 199301 ..... | 200306 |
| LTM .....     | 200411 ..... | 201509 |

**RC DATE:** 200309

# FTBR-008 ABANDONED LANDFILL 8 (OU3)

## SITE DESCRIPTION

FTBR-008 consists of four, solid waste landfills (8a, 8b, 8c, and 8d - totaling 50 acres) located near the intersection of Knox and Kedenburg Streets in the southern portion of the cantonment area. These unlined landfills were reportedly active between 1967 and 1970 for sludge, debris and unknown waste.

Previous inspections at FTBR-008 revealed the presence of leachate in Beaver Creek and exposed debris at several eroded locations at Landfills 8b and 8c. Chemical analysis during the RI/FS (RFI) revealed PCBs, petroleum hydrocarbons, VOCs, and SVOCs in soil. Groundwater constituents included VOCs, SVOCs, petroleum hydrocarbons, pesticides and metals. The final RI report was approved in 1996.

The FS (CMS/RD) was started in FY98. Sampling found low levels of methane at multiple locations. The CMS/RD were completed in FY03 and determined that soil exposure concerns would be addressed by limiting site access. Fencing and signs were funded in FY04 to limit site access and implement land use controls. The CMI(C) was completed in FY05.

DD was signed in FY03. Institutional controls, and GIS layers in the BMP were implemented thereafter.

Annual certification of the institutional controls will be documented in the RCRA Part B Permit.

First round of sampling was completed in FY04. Second round was completed August 2005. Third round is scheduled for April 2006. Continue to have exceedances of NCDENR groundwater standards.

## CLEANUP STRATEGY

LTM of 17 groundwater monitoring wells. All 17 wells will be sampled for Pesticides, PCBs, VOCs, SVOCs, RCRA Metals every nine months. Four consecutive sampling events with no exceedances of North Carolina groundwater standards are required prior to requesting a NFA. The O&M plan will be funded with non-ER,A funds.

## STATUS

**REGULATORY DRIVER:** RCRA, Subtitle C

**RRSE:** High

**CONTAMINANTS OF CONCERN:**  
Metals, PCBs, Pesticides,  
Petroleum Hydrocarbons, VOCs,  
SVOCs

**MEDIA OF CONCERN:**  
Groundwater, Surface Water,  
Sediment

| <u>Phases</u>    | <u>Start</u>        | <u>End</u>    |
|------------------|---------------------|---------------|
| RFA .....        | 198805 .....        | 198805        |
| CS.....          | 199008 .....        | 199009        |
| RFI/CMS.....     | 199807 .....        | 200305        |
| CMI(C) .....     | 200403 .....        | 200503        |
| <b>LTM .....</b> | <b>200503 .....</b> | <b>201509</b> |

**RC DATE: 200503**

# FTBR-009 ABANDONED LANDFILL 9 (OU3)

## SITE DESCRIPTION

FTBR-009 is an abandoned, construction, demolition debris and municipal solid waste landfill. It is located on ~30 acres of wetlands southeast of the intersection of Honeycutt Road and All American Freeway in the south central portion of the cantonment area, and was active between 1970 and 1975. It is bounded on the north by a railroad yard, on the east and the south by tributaries to Beaver Creek, and Honeycutt Road to the west. The All American Freeway runs through the western third of the landfill.

Chemical analysis of soil and groundwater samples collected during the RFI indicated several chemicals of concern: VOCs, SVOCs, petroleum hydrocarbons and metals. Trace levels of explosives were also detected in groundwater during the RFI. Contaminants that exceeded NC regulatory levels are addressed in the cleanup strategy.

Sampling found high levels of methane in multiple locations. The CMS/RD were completed in FY03 and determined that soil exposure concerns would be addressed by limiting site access. Fencing, signs and the passive methane venting system were funded in FY04.

DD was signed in FY03. Institutional controls, and GIS layers in the BMP were implemented thereafter.

Annual certification of the institutional controls will be documented in the RCRA Part B Permit.

First round of sampling was completed in FY04. Second round was completed August 2005. Third round is scheduled for April 2006. Continue to have exceedances of NCDENR groundwater standards.

## CLEANUP STRATEGY

LTM of 10 groundwater monitoring wells. All 10 wells will be sampled for Pesticides/PCBs, VOCs, SVOCs, RCRA Metals every nine months. Four consecutive sampling events with no exceedances of North Carolina groundwater standards are required prior to requesting a NFA. Methane will be monitored at methane sample points. The O&M plan will be funded with non-ER,A funds.

## STATUS

**REGULATORY DRIVER:** RCRA, Subtitle C

**RRSE:** High

**CONTAMINANTS OF CONCERN:** Methane, RCRA Metals, VOCs, SVOCs

**MEDIA OF CONCERN:** Groundwater

| Phases       | Start        | End    |
|--------------|--------------|--------|
| RFA .....    | 198805 ..... | 198805 |
| CS.....      | 199008 ..... | 199009 |
| RFI/CMS..... | 199807 ..... | 200309 |
| DES .....    | 200008 ..... | 200309 |
| CMI(C) ..... | 200403 ..... | 200503 |
| LTM .....    | 200503 ..... | 201509 |

**RC DATE:** 200503



# FTBR-012

## ABANDONED LANDFILL 12 (OU2)

### SITE DESCRIPTION

FTBR-012 is an abandoned, construction and demolition debris landfill located north of Butner Road in the northeast corner of the cantonment area. The unlined landfill was active from 1975 to 1985.

The RI (RFI) showed the landfill size to be ~9 acres. The site is bounded on the north and the west by Young Lake, on the south by the former Vocational Technical Training Area (FTBR-102), and on the east by a stream and power line right-of-way.

The RFI identified semi-volatile organic compounds, pesticides, metals, and petroleum hydrocarbons as constituents in soil, groundwater, and stream bed sediment samples.

The CMS was completed in April 2002, recommending fencing and LTM for groundwater and surface water. The RA (fencing and signs) was completed in FY04. LTM for groundwater and surface water constituents exceeding the NC groundwater standards is underway.

DD was signed in FY03. Institutional controls, and GIS layers in the BMP were implemented thereafter. Annual certification of the institutional controls will be documented in the RCRA Part B Permit.

First and Second round of sampling was completed in FY04. Third round was completed June 2005. Fourth round of sampling is scheduled for March 2006. Continue to have exceedances of NCDENR groundwater standards.

### CLEANUP STRATEGY

LTM of 5 groundwater monitoring wells. All 5 wells will be sampled for Pesticides and Metals every nine months. Surface water samples will be collected at three points for Metals, Pesticides, VOCs, SVOCs. Four consecutive sampling events with no exceedances of North Carolina groundwater standards are required prior to requesting a NFA. Methane will be monitored at methane sample points. The O&M plan will be funded with non-ER,A funds.

### STATUS

**REGULATORY DRIVER:** RCRA, Subtitle C

**RRSE:** High

**CONTAMINANTS OF CONCERN:** Metals, Pesticides, VOCs, SVOCs

**MEDIA OF CONCERN:** Groundwater, Surface Water

| Phases       | Start        | End    |
|--------------|--------------|--------|
| RFA .....    | 198805 ..... | 198805 |
| CS .....     | 199008 ..... | 199009 |
| RFI/CMS..... | 199709 ..... | 200209 |
| DES .....    | 200010 ..... | 200306 |
| CMI(C).....  | 200306 ..... | 200409 |
| LTM .....    | 200409 ..... | 201209 |

**RC DATE:** 200409



# FTBR-014

## ABANDONED LANDFILL 2 & 14 (OU3)

### SITE DESCRIPTION

Former FTBR-002 (59 acres) and FTBR-014 (3 acres) are located west of the intersection of Cook Drive and Knox Street near the south border of the cantonment area. The RFA identified two landfills at this site. However, the RFI revealed no evidence of a landfill at the location of Abandoned Landfill 2. Demolition Landfill 14 was operated from 1985 to 1986. Because FTBR-002 was incorporated into FTBR-014, FTBR-002 was deleted from AEDB-R.

The State of North Carolina and EPA approved a no further action option for Abandoned Landfill 2 (6/28/96). Proposed Highway 13 will cross the southern portion of the landfill.

Chemical analysis of FTBR-14 identified low levels of petroleum hydrocarbons and dieldrin in the soil, and low levels of PCE and metals in the groundwater. Concentrations of dieldrin and petroleum hydrocarbons were below state levels. High levels of methane were detected in the soil at Landfill 14. The CMS/RD was completed in FY03. Partial RA(C) was funded in FY04 (methane alarms in buildings as well as building warning signs).

DD was signed in FY03. Institutional controls and GIS layers in the BMP were implemented thereafter. Annual certification of the institutional controls will be documented in the RCRA Part B Permit.

First round of sampling was conducted June 2005. Continue to have exceedances of NCDENR groundwater standards.

### CLEANUP STRATEGY

LTM of 9 groundwater monitoring wells. All 9 wells will be sampled for Pesticides, PCBs (as a regulatory requirement), VOCs, SVOCs, RCRA Metals every nine months. Four consecutive sampling events with no exceedances of North Carolina groundwater standards are required prior to requesting a NFA. Methane will be monitored at methane sample points. The O&M plan will be funded with non-ER,A funds.

### STATUS

**REGULATORY DRIVER:** RCRA, Subtitle C

**RRSE:** High

**CONTAMINANTS OF CONCERN:**  
Methane, Pesticides, Petroleum Hydrocarbons, RCRA Metals, VOCs, SVOCs

**MEDIA OF CONCERN:**  
Groundwater

| Phases        | Start        | End    |
|---------------|--------------|--------|
| RFA .....     | 198805 ..... | 198805 |
| CS.....       | 199008 ..... | 199009 |
| RFI/CMS ..... | 199807 ..... | 200203 |
| CMI(C) .....  | 200403 ..... | 200506 |
| LTM .....     | 200506 ..... | 201509 |

**RC DATE:** 200506

# FTBR-063

## DEH STORAGE COMPOUND (OU4)

### SITE DESCRIPTION

FTBR-063 is the site of the former RCRA hazardous waste storage shed that was used between 1977 and 1982. It was located in the PWBC compound northwest of the intersection of Butner Road and Reilly Street. Stored wastes included PCB wastes, acids, caustics, solvents, paint wastes, used oil, photographic wastes, and insecticides. The unit was closed in 1982 because it was replaced with a RCRA-compliant generator storage area.

Chemical analysis of soil and groundwater samples collected during the RFI identified pesticides, volatile organic compounds and metals. The pesticides and VOCs were detected above regulatory levels. An IRA of soil removal was completed in FY00. The removal reduced the contamination levels in soil to below NC regulatory levels.

The CMS was completed in March 2004 and recommended LTM of groundwater for pesticides and VOCs, which exceeded NC groundwater standards.

DD was signed in FY04. Institutional controls, and GIS layers in the BMP were implemented thereafter. Annual certification of the institutional controls will be documented in the RCRA Part B Permit.

The first round of sampling was completed August 2005. Continue to have exceedances of NCDENR groundwater standards.

### CLEANUP STRATEGY

LTM of 18 groundwater monitoring wells. Thirteen of the wells will be sampled for VOCs and Pesticides every nine months. Four consecutive sampling events with no exceedances of North Carolina groundwater standards are required prior to requesting a NFA.

### STATUS

**REGULATORY DRIVER:** RCRA, Subtitle C

**RRSE:** High

**CONTAMINANTS OF CONCERN:** VOCs, Pesticides

**MEDIA OF CONCERN:** Groundwater

| Phases        | Start        | End    |
|---------------|--------------|--------|
| RFA .....     | 198805 ..... | 198805 |
| CS .....      | 199008 ..... | 199009 |
| RFI/CMS ..... | 199304 ..... | 200407 |
| IRA .....     | 200001 ..... | 200006 |
| LTM .....     | 200411 ..... | 201509 |

**RC DATE:** 200407

# FTBR-069

## JEEP DISMANTLING AREA, BLDG 8-3612 (OU4)

### SITE DESCRIPTION

FTBR-069 is located southeast of the intersection of Woodruff Street and Knox Street. This mostly unpaved, four acre area has been used to dismantle Army vehicles and store impounded vehicles. Currently, the area is used to store large Army vehicles.

Chemical analysis of soil and groundwater samples collected during the RFI identified volatile and semi-volatile organic compounds, pesticides, PCBs, metals, and petroleum hydrocarbons. Chlorinated Compounds exceed the state regulatory limits in groundwater, however the source has not been identified.

The Phase I RFI was started in FY96. In late FY00 the extended RFI was started and was completed in FY04. Levels of Chlorinated Compounds have been detected above NC groundwater standards over 1,000ft down-gradient from the original Jeep Dismantling Yard.

In 2005, as part of a pilot study, injection of HRC was conducted for hot spot treatment to determine the effectiveness of the pilot study approximately 10 wells will be sampled.

As part of the CMS, groundwater was sampled in Feb 2006.

Additional sampling is scheduled for April 2006.

Surface water samples were collected in Mar 2006. Lab data from the Surface Water Sampling at SWMU 69 (March 06), indicated no exceedances of NC standards in surface waters at FTBR-069.

### CLEANUP STRATEGY

A CMS will be completed in FY06. It is anticipated that in-situ hot spot treatment and LTM will be required as directed by the CMS.

### STATUS

**REGULATORY DRIVER:** RCRA, Subtitle C

**RRSE:** High

**CONTAMINANTS OF CONCERN:**

Pesticides, Metals, Petroleum Hydrocarbons, VOCs, SVOCs, PCBs

**MEDIA OF CONCERN:**

Groundwater, Surface Water

| Phases        | Start        | End    |
|---------------|--------------|--------|
| RFA .....     | 198805 ..... | 198805 |
| CS .....      | 199008 ..... | 199009 |
| RFI/CMS ..... | 199409 ..... | 200609 |
| CMI(C) .....  | 200609 ..... | 200610 |
| CMI(O) .....  | 200610 ..... | 201009 |
| LTM .....     | 201010 ..... | 201509 |

**RIP DATE:** 200610

**RC DATE:** 201009

# FTBR-103

## MALLONEE VILLAGE GAS STATION

### SITE DESCRIPTION

This site is located west of South Lucas Street, and bordered on the north by Honeycutt Road. It was formerly occupied by a commercial vehicle maintenance facility and gas station that was operated since the 1940s. The area is greater than six acres. A solvent tank was abandoned in place in the 1940s. This tank was rediscovered and removed in the late 1990s along with ~300cy of contaminated soil.

The RFI was started in Feb 2000. High levels of chlorinated solvents and gasoline constituents were detected in the sediment, surface water and groundwater. A plume of contaminated groundwater extends under family housing and a Ft Bragg elementary school. The plume is not stable (is increasing in size and moving down gradient).

The preliminary Site Conceptual Model (SCM) was developed in FY02. The extended RFI and final SCM were completed in FY04.

In March 2006, surface water samples were taken. Levels exceeded the NC Surface Water standards in the stream behind the elementary school.

Soil gas sampling points are planned for installation around the Holbrook Elementary School in the spring.

### CLEANUP STRATEGY

The CMS will be completed in FY06. It is anticipated that in-situ treatment and LTM will be required. Installation of injection wells will be required for groundwater treatment. Approximately 42 wells will be sampled to determine the effectiveness of the remedial action.

### STATUS

**REGULATORY DRIVER:** RCRA, Subtitle C

**RRSE:** High

**CONTAMINANTS OF CONCERN:**  
Metals, POL, Chlorinated Solvents

**MEDIA OF CONCERN:**  
Groundwater, Surface Water

| Phases        | Start        | End    |
|---------------|--------------|--------|
| RFA .....     | 200008 ..... | 200009 |
| CS .....      | 200008 ..... | 200009 |
| RFI/CMS ..... | 200202 ..... | 200609 |
| DES .....     | 200609 ..... | 200610 |
| CMI(C) .....  | 200610 ..... | 200709 |
| CMI(O) .....  | 200704 ..... | 200803 |
| LTM .....     | 200803 ..... | 201709 |

**RIP DATE:** 200709

**RC DATE:** 200803

# FTBR-104 OLD ASP SITE

## SITE DESCRIPTION

This is an abandoned Ammunition Supply Point that was demolished after World War II. The site is ~12 acres. The ammo was stored in open earthen berms that were bulldozed during demolition. It is unknown what type of ammunition was stored, however white phosphorus grenades were discovered during a USACE construction project at the site in 2003.

A hazardous waste removal action was funded with OMA funds to remove the soils and contamination from the white phosphorus. Removal of the white phosphorus was completed in FY04.

RFI was completed in FY06.

## CLEANUP STRATEGY

NFA determination is under review by NCDENR.

## STATUS

**REGULATORY DRIVER:** RCRA, Subtitle C

**RRSE:** High

**CONTAMINANTS OF CONCERN:** Explosives, VOCs, SVOCs, White Phosphorus

**MEDIA OF CONCERN:** Soil, Groundwater, Surface Water

| <b>Phases</b>   | <b>Start</b>        | <b>End</b>    |
|-----------------|---------------------|---------------|
| RFA .....       | 200302 .....        | 200405        |
| <b>CS .....</b> | <b>200505 .....</b> | <b>200604</b> |
| RFI/CMS .....   | 200604 .....        | 200609        |

**RC DATE:** 200609

## IRP No Further Action Sites Summary

| AEDB-R # | Site Title  | Documentation/Reason for NFA   | RC Date |
|----------|---|--|---------|
| FTBR-003 | Landfill 3  | NFA granted by NCDENR in 1996.   | 199401  |
| FTBR-007 | Abandoned Landfill 7 (OU1)                                | NFA granted by NCDENR in 1994.   | 199401  |
| FTBR-011 | Sanitary Landfill 11                                      | Not eligible for IRP. Site is included in Compliance Clean-up Program. | 198812  |
| FTBR-013 | Coolyconch MT Demo Landfill                               | Not eligible for IRP. Permitted landfill under Solid Waste rules.      | 198612  |
| FTBR-016 | Abandoned Landfill 16 (OU6)                               | NFA granted by NCDENR in 2005.   | 199909  |
| FTBR-020 | 82 Div Heating Plant                                      | Not eligible for IRP.  | 199909  |
| FTBR-024 | 18 <sup>TH</sup> EOD Demolition Area                      | Not eligible for IRP.  | 199006  |
| FTBR-026 | WTP Abandoned Lagoon & Drying Beds                        | Not eligible for IRP.  | 199006  |
| FTBR-030 | Loading/Unloading Area (OU1)                              | NFA granted by NCDENR in 1997.   | 199009  |
| FTBR-031 | Ash Tank Site (OU1)                                       | NFA granted by NCDENR in 1994.   | 199606  |
| FTBR-033 | Used Oil USTS (OU8)                                       | Not eligible for IRP. All tanks were closed after 1986.                | 199903  |
| FTBR-035 | Oil/Water Separators (OU9)                                | Not eligible for IRP. Site is still active.                            | 200310  |
| FTBR-036 | Washracks (OU10)  | Not eligible for IRP. Site is still active.                            | 200005  |
| FTBR-038 | Grit Chamber (OU7)  | NFA granted by NCDENR in 2006.   | 199703  |
| FTBR-039 | Primary Sedimentation Tanks (OU7)                         | NFA granted by NCDENR in 2006.   | 199703  |
| FTBR-040 | Biofilters (OU7)  | NFA granted by NCDENR in 2006.   | 199703  |
| FTBR-042 | Secondary Sedimentation Tanks (OU7)                       | NFA granted by NCDENR in 2006.   | 199703  |
| FTBR-043 | Chlorination Flash Mix Tank (OU7)                         | NFA granted by NCDENR in 2006.   | 199703  |
| FTBR-044 | Chlorination Contact Tank (OU7)                           | NFA granted by NCDENR in 2006.   | 199703  |
| FTBR-045 | Recirculation Tanks (OU7)                                 | NFA granted by NCDENR in 2006.   | 199703  |
| FTBR-046 | Stepped Cascade (OU7)                                     | NFA granted by NCDENR in 2006.   | 199703  |
| FTBR-050 | WWTP Sludge Drying Beds(OU7)                              | Not eligible for IRP. Site is included in Compliance Clean-up Program. | 199401  |
| FTBR-077 | 782 <sup>ND</sup> Battery Shop Neutralization Tanks (OU5) | NFA granted by NCDENR in 2000.   | 199703  |

## IRP No Further Action Sites Summary

| AEDB-R # | Site Title   | Documentation/Reason for NFA  | RC Date |
|----------|--|---|---------|
| FTBR-086 | 659TH Battery Neutralization Tank (OU6)              | Not eligible for IRP. Site is included in Compliance Clean-up Program. LTM is planned.          | 199703  |
| FTBR-088 | 659TH Used Oil Pit (OU6)                             | Not eligible for IRP. Site is included in Compliance Clean-up Program. LTM is planned.          | 199703  |
| FTBR-102 | Vocational Technical Training Area (OU2)             | NFA granted by NCDENR in 2006.  | 200112  |
| FTBR-A   | WTP Fuel Tanks Spill (AOC A, OU7)                    | Not eligible for IR. NFA granted by NCDENR in 2005 under CC Program.                            | 199703  |
| FTBR-B   | Classified Paper Fuel Tanks Spill (AOC B, OU1)       | NFA granted by NCDENR in 1997.  | 199609  |
| FTBR-C   | Bldg P-3262 Fuel Spill (AOC C, OU6)                  | NFA granted by NCDENR in 2003.  | 199703  |
| FTBR-D   | Bldg M-7951, Fuel Spill (AOC D, OU6)                 | NFA granted by NCDENR in 2003.  | 199703  |
| FTBR-E   | Bldg 8-4606, Fuel Spill (AOC E, OU4)                 | NFA granted by NCDENR in 1999.  | 199703  |
| FTBR-F   | Vet Clinic Incin Bldg 2-7402, UST Spill (AOC F, OU4) | Not eligible for IRP. Site is included in Compliance Clean-up Program, to be addressed in FY06. | 199703  |
| FTBR-G   | Lee Fieldhouse UST Spill Bldg 3-1604 (AOC G, OU4)    | NFA granted by NCDENR in 2003.  | 199703  |

***Initiation of IRP:*** 1980

### ***Past Phase Completion Milestones***

#### **1982**

- IRP Assessment Initiation, July

#### **1986**

- FTBR-Evaluation, December

#### **1988**

- RFA, Installation, July

#### **1990**

- SI of SWMUs 4, 8, and 18, May

#### **1992**

- PA/SI, January

#### **1995**

- RFI of SWMUs 63, 69, AOCs E, F, G Initiated, July

#### **1996**

- RFI of SWMUs 12, 102, April
- IRA of SWMU 102, May
- RFI of SWMUs 16, 86, 88, AOCs C, D Initiated, July
- RFI of SWMUs 3, 5, August
- RFI of SWMUs 2, 14, 8, 9, December

#### **1997**

- FS/RD of SWMUs 12, 102 Initiated, September

#### **1998**

- FS/RD of SWMUs 2, 8, 9, 14 Initiated, September
- RFI of SWMUs 7, 30, 31, AOC B, January
- IRA of SWMU 63 Initiated, July
- RFI of SWMUs 1, 77, .... August

#### **2000**

- RFI at FTBR-103 Initiated, February

#### **2001**

- CMS/RD at OU 3, December
- CMS at SWMU 8,9, & 14, January
- CMS at SWMU 63, February
- RA at A-2058, March
- Methane and GW Sampling at OU3, June

#### **2002**

- CMS at SWMU 12, January



### **2002 (continued)**

- CMS at OU 3, March
- SCM at SWMU 69, May
- PCB Sampling at SWMU 8, July

### **2003**

- RFI Complete OU6, December
- CMS at SWMU 5, February
- Extended RFI SWMU 103, March
- RA at SWMU 12, April
- LTM at SWMU 1, June

### **2004**

- CMS at SWMU 63 (Final), January
- CMS at SWMUs 4 & 18, March

### **2005**

- Pilot Study GW Injection SWMU 103, January
- RA at OU3, February
- CMS at SWMU 69, March
- Pilot Study GW Injection SWMU 69, December

***Projected Record of Decision (ROD)/Decision Document (DD) Approval Dates:*** 2007

***Schedule for Next Five-Year Review:*** NA

***Estimated Completion Date of IRP (including LTM phase):*** 2017

# FORT BRAGG IRP SCHEDULE

(Based on current funding constraints)

| AEDB-R # | Phase  | FY07 | FY08 | FY09 | FY10 | FY11 | FY12 | FY13 | FY14 | FY15+  |
|----------|--------|------|------|------|------|------|------|------|------|--------|
| FTBR-001 | LTM    |      |      |      |      |      |      |      |      | 201509 |
| FTBR-004 | LTM    |      |      |      |      |      |      |      |      | 201509 |
| FTBR-005 | LTM    |      |      |      |      |      |      |      |      | 201509 |
| FTBR-008 | LTM    |      |      |      |      |      |      |      |      | 201509 |
| FTBR-009 | LTM    |      |      |      |      |      |      |      |      | 201509 |
| FTBR-012 | LTM    |      |      |      |      |      |      |      |      |        |
| FTBR-014 | LTM    |      |      |      |      |      |      |      |      | 201509 |
| FTBR-063 | LTM    |      |      |      |      |      |      |      |      | 201509 |
| FTBR-069 | CMI(C) |      |      |      |      |      |      |      |      |        |
|          | CMI(O) |      |      |      |      |      |      |      |      |        |
|          | LTM    |      |      |      |      |      |      |      |      | 201509 |
| FTBR-103 | DES    |      |      |      |      |      |      |      |      |        |
|          | CMI(C) |      |      |      |      |      |      |      |      |        |
|          | CMI(O) |      |      |      |      |      |      |      |      |        |
|          | LTM    |      |      |      |      |      |      |      |      | 201709 |

*Prior Years Funds (may be listed by project instead of site)*

**Funding up to FY04: \$19,491,000**

| Year        | Site Information                             | Expenditures | FY Total    |
|-------------|--|--------------|-------------|
| <b>FY05</b> | LTM FTBR-001 Abandoned Landfill 1            | \$ 100,000   |             |
|             | LTM FTBR-004 Landfill 4 and Fire Pits 18     | \$ 89,600    |             |
|             | LTM FTBR-005 Abandoned Landfill 5            | \$ 41,060    |             |
|             | LTM FTBR-008 Abandoned Landfill 8            | \$ 66,660    |             |
|             | LTM FTBR-009 Abandoned Landfill 9            | \$ 37,520    |             |
|             | LTM FTBR-012 Abandoned Landfill 12           | \$ 10,000    |             |
|             | RA(C) FTBR-014 Abandoned Landfill 2 & 14     | \$ 284,540   |             |
|             | LTM FTBR-014 Abandoned Landfill 2 & 14       | \$ 35,790    |             |
|             | LTM FTBR-063 DEH Storage Compound            | \$ 75,000    |             |
|             | RI/FS FTBR-069 Jeep Dismantling Area         | \$ 125,000   |             |
|             | CMS/RD FTBR-103 Mallonee Village Gas Station | \$ 727,060   | \$1,592,230 |

**Total Funding up to FY05: \$21,083,230**

**Current Year Requirements\***

| Year        | Site Information                             | Expenditures | FY Total           |
|-------------|--|--------------|--------------------|
| <b>FY06</b> | LTM FTBR-001 Abandoned Landfill 1            | \$ 50,000    |                    |
|             | LTM FTBR-004 Landfill 4 and Fire Pits 18     | \$ 80,000    |                    |
|             | LTM FTBR-005 Abandoned Landfill 5            | \$ 59,000    |                    |
|             | LTM FTBR-008 Abandoned Landfill 8            | \$ 59,000    |                    |
|             | LTM FTBR-009 Abandoned Landfill 9            | \$ 59,000    |                    |
|             | LTM FTBR-012 Abandoned Landfill 12           | \$ 10,000    |                    |
|             | LTM FTBR-014 Abandoned Landfill 2 & 14       | \$ 66,000    |                    |
|             | LTM FTBR-063 DEH Storage Compound            | \$ 54,000    |                    |
|             | CMI(C) FTBR-069 Jeep Dismantling Area        | \$ 200,000   |                    |
|             | CMI(O) FTBR-069 Jeep Dismantling Area        | \$ 50,000    |                    |
|             | CMS FTBR-103 Mallonee Village Gas Station    | \$ 7,000     |                    |
|             | DES FTBR-103 Mallonee Village Gas Station    | \$ 10,000    |                    |
|             | CMI(C) FTBR-103 Mallonee Village Gas Station | \$1,218,000  |                    |
|             | CMS FTBR-104 Abandoned ASP                   | \$ 127,000   |                    |
|             | LTM FTBR-104 Abandoned ASP                   | \$ 54,000    | <b>\$2,103,000</b> |

**Total Funding FY06: \$2,103,000**

*\*Based on the FY06 Obligation Plan*

**Total Future Requirements: \$7,118,000**

**Total IR Program Cost (from inception to completion of the IRP): \$30,304,230**

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## Community Involvement

The results of a public involvement survey conducted in Feb 2006 indicate the community of Fort Bragg has no interest in forming a RAB.